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INTER-AFRICAN AFFAIRS

BRIEFS

GREAT LAKES COUNTRIES CHOLERA--Cholera has killed several hundred people in Burundi, Rwanda and eastern Zaire, sources close to Belgium's Co-operation and Development Ministry in Brussels have revealed. They said that a team which had just returned from the African region said since the epidemic started in February, 4,768 cases of cholera had been recorded (up to September 21), and 160 patients had died--a toll of 3.35 per cent. Fewer people had been affected in Rwanda but no figures were known, while in Zaire's Kivu Region, 2,000 sick had attended hospitals and 3.3 per cent (66) had died. While the figures took no account of the sick who could not register or get to hospitals the ministry discounted reports that cholera had killed 1,000 people in Kivu Region alone. Belgium had already provided 3 million Belgian francs (about 90,000 dollars) credit for emergency medical aid. On Tuesday, informed sources in Kinshasha, the Zairese capital, said several hundred people had died in eastern Kivu Province, and Western medical sources said about 2 million people had been affected by the outbreak which might spread to other areas. [Text]
[Kaduna NEW NIGERIAN in English 12 Oct 78 p 14]

CSO: 5400

ARGENTINA

CHAGAS' DISEASE AFFECTS THIRD OF JUJUY POPULACE

Buenos Aires LA NACION in Spanish 24 Sep 78 p 18

[Text] San Salvador de Jujuy--Thirty percent of Jujuy's population is affected by Chagas' disease. This alarming figure was given by Jujuy's Under Secretary of Public Health Dr Carlos Martin Barcena, who presided over the start of the campaign against this disease, which was held in El Piquete, located in Santa Barbara Department, in the subtropics.

Dr Barcena stated that 120,000 people in Jujuy are affected; that is, one-third of this province's population of 360,000. He added that in 1977 there were 1,007 confirmed new cases which, when added to those which are certain to be confirmed, will in all probability drive the percentage even higher. He also added that every year there are 1,000 infants born in Jujuy Province with congenital Chagas'-Mazza disease.

Next, Dr Barcena explained the progress of that campaign--which is being carried out in many places--whose first step consists of locating and destroying the "vinchuca" [a kind of winged bed-bug], the insect which carries the disease. Then, official action is taken to seek out those suffering from Chagas' disease to care for them and treat the disease.

Inauguration

A citrus juice and vegetable oil processing plant was inaugurated in El Piquete, Santa Barbara Department.

Dr Pablo Teran Nougues spoke at the occasion and stressed the importance of this factory for the region's economy.

The plant will acquire the citrus production of a large area within the departments of San Pedro, Ledesma and Santa Barbara.

An Official's Activity

The Secretary of Youth and Family, Dr Florencio Varela, ended his working visit to Jujuy. He arrived last Tuesday, and during these four working days visited homes for children, old people and youth and also welfare projects, many supported by the church.

In the process of so doing, he traveled, together with area officials, to the most distant reaches of the province.

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BRAZIL

MEASURES TAKEN TO CONTROL HERPES ZOSTER, LEISHMANIASIS

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 15 Sep 78 p 16

[Text] A directive establishing rules for the control of herpes zoster (shingles) and leishmaniasis will be signed next week by Minister of Health Almeida Machado, in an effort to reduce the number of carriers of these diseases, which have already been spread throughout the entire nation. These rules will be implemented by the secretaries of health of the various states, who will establish courses to train doctors to diagnose and treat patients in the interior of the country, in view of the fact that there are a total of only 200 beds in the three hospitals (in Goiania, Campo Grande and Uberaba) that specialize in the disease [sic].

At present there are a total of 13,000 reported cases of herpes zoster, which until only a few years ago was concentrated in central Brazil, principally in Goias State (with 4,000 cases at the present time, representing 35 percent of the national total). The remainder of the victims of the disease are distributed among Amazonas, Para, Maranhao, Minas Gerais, Parana, the Federal District, and almost all of the indigenous areas.

Because of the lack of federal funds, the Goias Institute of Tropical Medicine and the Evandro Chagas Institute of Tropical Medicine (in Belem) will require another 3 years to complete their research on the arboviruses. After that time, preventive measures will be available for use against herpes zoster, the etiology of which is unknown to date because of the virtual cessation of all research in this field. Some scientists presume that the disease is transmitted by the blackfly.

10992

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BRAZIL

MENINGITIS CASES REPORTED FROM BAHIA, RIO, BRASILIA

Cases in Bahia, Rio

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 15 Sep 78 p 16

[Text] (From the local bureaus)--The Secretariat of Health of Bahia State yesterday dispatched a team of public health experts to the village of Nate--133 kilometers from Salvador--to verify a report that seven persons have died in recent days from meningococcus meningitis. Secretary of Health Jose Hermogenes said yesterday that only two cases could be confirmed: a little boy who died in Cachoeira, and a 16 year old girl who has been hospitalized.

In Rio de Janeiro the second case within 1 week has been confirmed: that of a 2 year old girl, Debora Blaichman, who died last Sunday after being rushed to the hospital. The earlier case was recorded at the Dynamic School for Modern Education, but the name of the pupil was not disclosed. The public health authorities of the state have so far made no statement concerning the matter, and classes have not been suspended at either of the two schools concerned although attendance has declined.

Confirmed Case in Rio

Rio de Janeiro O GLOBO in Portuguese 13 Sep 78 p 18

[Text] One case of meningitis has been confirmed at the Dynamic School for Modern Education (EDEM), a private school located in the Cosme Velho district: one of its pupils was hospitalized last Saturday, and yesterday the results of the tests confirmed the nature of the disease. According to the school administration, however, it is not the meningococcus type of meningitis "and consequently," they said, "there is no danger of contagion." There is reason to believe that another case occurred in Rio, this one at the Barilan Center for Jewish Religious Education in Copacabana: Debora Blaichman, 2 years of age, who attended nursery school there, died last Sunday after being hospitalized at the Emergency Pediatric Hospital in Botafogo with the symptoms of the disease. Personnel both at the Barilan center and at the hospital, however, refused yesterday to supply any information concerning the matter.

The case that occurred at the Dynamic School for Modern Education was reported to the school administration by the father of the sick child, neither of whom was identified. On Monday the father telephoned the school to notify it that his son--a pupil in the nursery school--had been hospitalized the previous Saturday with a suspected case of meningitis, and that the appropriate tests were being made. That same day EDEM distributed a circular to the parents of their pupils recommending that they consult their children's pediatricians, even though the disease had not yet been confirmed. Yesterday the school administration reported that it had received the results of the tests and that the illness had been confirmed as a case of "nondangerous" meningitis. An epidemiologist from the Secretariat of Health who was supposed to have visited the school yesterday failed to show up, but classes continued on a normal schedule.

Immunizations in Brasilia Area

Rio de Janeiro O GLOBO in Portuguese 16 Sep 78 p 6

[Text] Brasilia (O GLOBO)--The Ministry of Health is today beginning the immunization of the entire population of the satellite cities of Taquatinga, Ceilandia and Planaltina against meningococcus meningitis, except for children under 6 months of age, persons with a fever, and pregnant women in their first 3 months of pregnancy. The three cities together have a total population of 300,000, but an additional 200,000 or so persons from nearby cities are expected to show up as well. The 15 immunization stations will operate continuously until tomorrow night, and the Ministry of Health has a supply of vaccine sufficient to immunize 700,000 persons. Minister of Health Almeida Machado declared that the incidence of meningococcus meningitis in Brazil is within normal limits. It is only in these three cities that an increased incidence of the disease next year was feared, hence the mass immunization program.

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BRAZIL

OUTBREAK OF GERMAN MEASLES IN PORTO ALEGRE DENIED

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 5 Sep 78 p 17

[Text] The above-normal number of cases of German measles in Porto Alegre has caused Antonio Milhem, general administrator of the public charity hospital clinics, to warn that an outbreak of this infectious and contagious disease has occurred in the capital of Rio Grande do Sul. State Secretary of Health Francisco Salzano Vieira da Cunha, however, does not acknowledge the existence of an outbreak of the disease. "We are carrying out a mass inoculation program," he explains, "but it has been planned ever since last year."

Late in 1977 the Secretariat of Health of the state ordered 50,000 doses of vaccine from the United States, and they arrived early this year. Since the effectiveness of the vaccine is limited to 10 months (the expiration date on the vaccine is next 30 October), the mass immunization was begun immediately, with emphasis on children in the 7 to 10 year age group.

The data supplied by the Secretariat of Health reveal that in Porto Alegre, from 1972 to 1973, 19 percent of all women between 20 and 40 years of age were without protection from German measles. In the 0 to 19 year age bracket, susceptibility to German measles ranged from 92 percent in those under 1 year of age to 32 percent for the 15 to 19 year age group. It was also disclosed that a total of 624 cases of German measles had been duly reported and confirmed during the period between January 1975 and June 1978, during which time a total of 168,924 doses of vaccine were administered.

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CSO: 5400

BRAZIL

INFANTILE PARALYSIS CASES STILL NOT CONFIRMED OFFICIALLY

Sao Paulo FOLHA DE SAO PAULO in Portuguese 30 Aug 78 p 15

[Text] The Secretariat of Health of Sao Paulo State is still awaiting the results of the laboratory tests conducted for the purpose of verifying the suspected cases of infantile paralysis that occurred last July in the Santa Cecilia public health district. This was disclosed yesterday by Jose Cassio de Moraes, director of the Health Information Center.

Only one case has been confirmed so far, Moraes says: that of "a child at the FEBEM [State Child Welfare Foundation] Screening Center on Angatuba Street. The other seven suspected cases of the disease," he added, "are still awaiting completion of the tests, which have been delayed.

"After the clinical diagnosis is made," he continued, "two types of laboratory tests must be carried out. The first is called 'coproculture' and requires 90 days; it involves analysis of the patient's feces. A second blood sample must then be taken from the patient, and this requires an additional 15 days."

According to Moraes the importance of these tests, together with a clinical checkup of the patient 60 days following the acute stage, stems from the fact that the paralysis caused by the polio virus is irreversible whereas the paralysis caused by other enteroviruses is reversible.

"The most important step," Moraes declared, "has already been taken by the Secretariat of Health, namely a 'blockade' vaccination administered within a radius of 500 meters on the streets where the first suspected cases were recorded." This measure is taken, he said, when a very high percentage of the population has been immunized "as in the case of Sao Paulo," he added.

Moraes believes that even if the suspected cases are confirmed this does not necessarily represent an "outbreak" of the disease, in view of the fact that the district where these cases occurred has a population of 680,000. "Year by year the number of cases of infantile paralysis is declining," he said, "thanks to the vaccination campaigns." According to his data, a total of 374 cases were recorded in Sao Paulo in 1975, only 85 in 1976 and 58 in 1977. A total of 32 cases have been confirmed so far this year.

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BRAZIL

DATA ON INFANT MORTALITY IN NORTHEAST RELEASED

Rio de Janeiro JORNAL DO BRASIL in Portuguese 14 Sep 78 p 15

[Text] Salvador--Infant mortality in the capitals of the northeastern states has been "far above 90 per 1,000 live births," a rate which "is in itself high but is admittedly below the actual figure." This conclusion is drawn in the report entitled "Structure of Mortality" which has been released by the Bahia office of SUDENE [Superintendency for Development of the Northeast]. The report analyzes the situation in the Northeast from 1970 to 1975--a period that encompasses part of the era of the "Brazilian miracle" and its subsequent decline.

The report (the release of which coincides with the Fourth National Congress on Irrigation and Drainage) focuses its attention on the factors of income, urbanization, sanitation, health and nutrition and on their connection with the phenomenon of mortality. It points out that in 1975, mortality in Recife, Joao Pessoa and Maceio was 119, 130 and 168 deaths per 1,000 live births, respectively.

Disparities

The Northeast--according to the IBGE [Brazilian Institute of Geography and Statistics]--is the second most heavily populated region of Brazil, with 30 percent of the total of 110 million Brazilians, and its gross birth rate from 1970 to 1975 was only half the average death rate: 44 per 1,000 over the 5-year period. It is precisely the under-20 age group that predominates in this statistic, accounting for 57 percent of the overall mortality.

The growth of the gross national product--the reference factor most widely used during the era of the "Brazilian miracle" to gauge the country's development--was 43 percent for the 5-year period, whereas the figure for the country as a whole was 63 percent. "This disparity in the growth of the GNP served to accentuate the existing regional disparities even further," SUDENE says.

In discussing the concentration of income in the region, the report relies on a statistic obtained in 1972. "Of the employed population of the Northeast," the report states, "78.2 percent had an income equal to or less than the minimum wage; and of this 78.2 percent, 52.8 percent had an income equal to or less than half the minimum wage." The category denominated "technical and scientific, artistic and related" was represented by 4.2 percent of the employed population; and of this 4.2 percent, 7 percent had an income greater than the equivalent of 10 minimum wages.

Nutrition

Only 811 of the 2,580 cities and towns of the Northeast are served by a water supply system; and in the state capitals, residential connections average only 65 percent of the potential total. An average of 4 percent of the total population of the region were served by sewers in 1975, with the residents of the states of Bahia (0.4 percent and Piaui (0.8 percent) receiving the least service.

Of the total of 7,791 artesian wells that were in existence in 1975, the report states, "only 40 percent were in operation." The results of the surveys made concerning nutrition are the most significant of all. They show that in 1976, 80 percent of the population of Recife "did not have sufficient income to enable them to obtain the minimum essential nutrition."

In the under-five age group, the percentage of children suffering from first, second and third degree malnutrition ranged between 57 percent and 78 percent in municipalities of the states of Pernambuco and Alagoas.

The principal causes of the high infant and adult mortality rates in the Northeast (the latter is reported at 34.5 percent) are infectious, parasitic and cardiovascular diseases, and pneumonia. Ironically, the report adds, "the mortality from infectious and parasitic diseases, and from nutritional deficiencies, in the under-five age group showed a tendency to increase as the GNP and inflationary index increased."

It is to be expected, the report states, that the infant mortality rate in the rural areas will be "substantially higher" than the average for the capital cities, and notes that "the variable factor of income definitely played a major role in maintaining this high rate during the period under study. In respect to this critical situation of the low-income sector of the population," the report goes on to say, "one pertinent, and almost inevitable, question must be asked: 'How does this sector manage to survive?'"

SUDENE asserts that urbanization is not synonymous with development. "Urbanization," it says, "poses certain dangers, not only because of the attendant negative conditions but because of the fact that it takes place at the expense of segments of the population which are not qualified to perform urban labor."

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BRAZIL

UNIDENTIFIED DISEASE ATTACKS LOCALITY IN MINAS

Eight Dead to Date

Brasilia CORREIO BRAZILIENSE in Portuguese 1 Sep 78 p 8

[Text] Belo Horizonte--Contaminated water? Pesticides? No one is yet able to explain the death of eight persons in recent months at a locality in Ribeirao das Neves Municipality. All eight had been attacked by the same disease, whose symptoms are headaches, pain in the legs and a high fever. The residents of the region are apprehensive not only because of the several deaths that have occurred but also because of the silence of the doctors and government officials, who offer no explanation for what is happening. The most recent victim to die was buried yesterday in BH [Belo Horizonte], while the ninth person to be attacked by the disease is in critical condition at Cicero Ferreira Hospital.

A disease that has still not been identified by the doctors of the Secretariat of Health and of Cicero Ferreira Hospital has already claimed eight lives in a period of only 8 months, in a small community called Fazenda da Colina situated between Kilometers 675 and 678 on Highway BR-040 in Ribeirao das Neves Municipality. Vicente Alves dos Santos, the eighth victim, was buried at 1100 hours yesterday in Paz Cemetery, while Geraldo Rodrigues Moraes is in critical condition, in total isolation, in Room 330 of Cicero Ferreira Hospital. The doctors at the hospital do not as yet have any explanation for these cases. Of the three victims who have died in the hospital wards, an autopsy has been performed on only the most recent victim, with the cause of death to be disclosed within approximately 1 month, according to hospital personnel. The symptoms of the disease have been the same in the case of all the victims: headaches, pain in the legs and a very high fever.

In Fazenda da Colina--a community consisting of several small farms and ranches on which a total of 20 families live--there is great apprehension and sorrow. The agricultural workers are determined to move from the region as soon as possible, in an effort to avoid additional deaths. Also noteworthy is the fact that within a period of 57 days four members of one family died: the wife, daughter, son and grandson of Jose Damasceno, a farm worker who accuses SERMECO [expansion unknown]--an industrial firm

that owns a ranch in the vicinity--of being responsible for everything that has happened. "Almost all of those who have died," Damasceno says, "drank the water of the ranch--water that is taken from a polluted pond at the side of the highway."

The first fatal case occurred last December when a farm worker, Franquelino Jose da Costa, displayed symptoms which proved to be the same as those suffered by all eight of the subsequent victims: extremely severe pain in the head and in the legs, and a fever which none of the home remedies used could alleviate. The victim's family, however, did not call in a doctor. The farm worker subsequently died, and was buried in the Riberao das Neves Cemetery.

Two More Victims

Rio de Janeiro O GLOBO in Portuguese 10 Sep 78 p 11

[Text] Belo Horizonte (O GLOBO)--Two more residents--a young man and a young woman--of Fazenda da Colina have been admitted to the hospital for observation. It was in this small community--located near Ribeirao das Neves in the metropolitan region of the state capital--that an unknown disease had already killed a total of eight residents.

According to Evandro Cunha Melo, administrator of Cicero Ferreira Hospital, it is anticipated that the results of the tests carried out by the Department of Pathological Anatomy of the UFMG [expansion unknown] and by the Medical-Legal Institute will be released by next Tuesday, at which time the causes of the disease may perhaps be known.

Cunha Melo says that the doctors strongly suspect that the residents of Fazenda da Colina are being poisoned by pesticides used in coffee growing, or by fertilizers. "An enormous variety of brands of different products," he said, "are in use on the plantations--approximately 16 of them all told, including fertilizers and insecticides. In addition," he declared, "the cattle are sprayed to control pests, with products that are harmful to human health."

The hospital administrator believes that the malady is either an infectious disease or an endogenous intoxication contracted by the improper handling of insecticides, but adds that it has not been possible to make a precise diagnosis. The agent that is the cause of the disease, he says, must necessarily be bacterial or toxic in nature.

The Adolfo Lutz Institute of Sao Paulo is examining a sample of the brain of one of the victims of the disease, but has not yet released the results.

A third patient--Geraldo Rodrigues de Moraes, 65 years of age--who was admitted to Cicero Ferreira Hospital several days ago in a coma has now recovered, according to the administrator.

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BRAZIL

BRIEFS

YELLOW FEVER IMMUNIZATION EFFORTS--Brasilia (O GLOBO)--The Ministry of Health plans to immunize approximately 5 million persons this year against jungle yellow fever, at its 300 immunization units established at various points in the nation, including 200 in Legal Amazonia alone, where the disease is endemic. Despite the increase in the incidence of the disease on the American continent, only 10 deaths from it have been recorded to date--a figure regarded as normal by the ministry's technical experts, who deny that there is any danger of an epidemic. The ministry has a supply of 2 million doses of vaccine stored at the Superintendency for Public Health Campaigns (SUCAM), and another 5 million doses at the Oswaldo Cruz Institute Foundation, for use in any emergency. [Text] [Rio de Janeiro O GLOBO in Portuguese 23 Aug 78 p 9] 10992

29 CASE OF MENINGITIS--Rio de Janeiro, 26 Oct (AFP)--It was reported here today that 29 new cases of meningitis were recorded in Rio de Janeiro during the past 24 hours. A spokesman of the local health secretariat stated that the number of persons affected by meningitis this month in this city totals 232, while 612 cases were detected during the first 9 months of 1978. [Paris AFP in Spanish 1748 GMT 26 Oct PY]

NEW CASES OF MENINGITIS--Rio de Janeiro, 31 Oct (AFP)--Twenty-one new cases of meningitis have been recorded in this city within the last 96 hours, raising the number of persons to 271 affected by the disease in October, it was reported today. According to data from health officials, (?19) of the 271 cases are symptomatic [words indistinct] meningococcus and they still have not succeeded in identifying the virus which is responsible for the recurrence of the disease. In the first 9 months of 1978, 612 cases of meningitis were recorded in Rio de Janeiro, 214 of them fatal. [Text] [Paris AFP in Spanish 1643 GMT 31 Oct 78 PY]

EAST GERMANY

INFLUENZA IMMUNIZATION PROGRAM EXPLAINED

East Berlin PRESSE-INFORMATIONEN in German No 106, 8 Sep 78 p 2

[Article by Prof Dr Konstantin Spies, deputy minister of health]

[Text] This year the immunization program against viral influenza in the GDR will begin on 28 September and end on 30 November. As in past years, the program will be free of charge and participation voluntary. In factories, institutions and schools, the vaccination dates will be announced through public notices. The World Health Organization believes that protective immunization is the most effective preventive action against viral influenza. Viral influenza belongs to the so-called cold diseases that are caused by more than 200 different viruses. However, because of its serious nature as a sickness, the frequent complications and epidemic proportions it may reach, viral invluenza is considered a special case.

The influenza virus changes constantly and, within short intervals of time, appears in ever changed form. The human organism, however, can acquire immunity only against viruses with which it has already come in contact. In the fall of each year, therefore, we implement for broad segments of the population a protective immunization program that uses actual vaccination virus strains that correspond to the types of viral influenza that are spreading at a particular time.

Last year the opinion of scientists was confirmed that after a longer period of time there is a reoccurrence of influenza viruses which are very similar to others that had appeared previously and meanwhile had disappeared. Influenza viruses of type A₁, which had caused epidemics between 1946 and 1957 but had later disappeared, last year caused an influenza wave that originated in the People's Republic of China and spread to many other countries. The sickness also appeared in the GDR, but in relatively mild form. It affected primarily children and young people under 25 who had previously not come in contact with this virus.

For 1978 the World Health Organization recommended the use of influenza vaccines containing vaccine strains of the new types of influenza virus:

A₁ (H 1 N 1) and A₂ (H 3 N 2). The vaccine that is produced in, and has been further developed by, the Saxon Serum Works VEB, Dresden, meets these requirements and has good tolerance qualities. This was confirmed through extensive preliminary tests in Halle, Gera and Karl-Marx-Stadt bezirks. Both young people and adults showed good antibody formation (immunity) and tolerance in response to the vaccine.

Every citizen is advised to participate in the vaccination program. Vaccination is once again recommended especially for people suffering from chronic diseases, for older people and for all collectives which are more seriously exposed to the dangers of infection, as well as for all those working in the fields of commerce and supply, transportation, education and public health.

Our special concern this year is the protective immunization of students in grades 9 through 12, of apprentices, and in general of all young people under 25. This is the age group which so far has had no contact with the virus and, according to our experience of last winter, is especially vulnerable in case of an epidemic. Young people under 25 will receive two separate vaccinations within 4 weeks. Those over 25 will receive only one vaccination.

Thanks to the efforts of the workers at the Saxon Serum Works VEB in Dresden, production of the high-quality vaccine has been increased so that now every interested citizen can be vaccinated. This places great responsibility on each individual, but also on state and economic management organs and social organizations which can help in implementing this most effective influenza prevention program in factories, institutions and schools. Public health departments have made the necessary preparations for effective organization of this action.

In addition to protective immunization, a healthy life style is of course very important. Proper nutrition and active uses of leisure time increase the resistance of the human organism and help eliminate factors that foster infections. All these measures should be of concern to every citizen because they contribute to the general stabilization of health.

8889

CSO: 5400

INDIA

BRIEFS

ENCEPHALITIS DEATHS--New Delhi, 21 Oct (AFP)--Encephalitis killed more than 150 people this week in Uttar Pradesh, according to medical authorities. More than 350 cases have been diagnosed in the eastern part of the state. [Hong Kong AFP in English 1026 GMT 21 Oct 78 BK]

ENCEPHALITIS IN BENGAL--In West Bengal, 500 people have died on encephalitis since last May. This has been stated by an official spokesman of the state health department in Calcutta on 30 October. [Delhi Domestic Service in English 0240 GMT 30 Oct 78 BK]

CSO: 5400

JAPAN

BRIEFS

CHOLERA IN FUNABASHI CITY--Chiba Oct 13 KYODO--A 66-year-old woman of Funabashi City not far from Chiba Friday evening was diagnosed as a genuine case of cholera and was placed in the quarantine ward of the State Narashino Hospital. She is a secondary infection case because she has had no experience in making overseas trips. The route of her infection, however, is not traced as yet. A total of 17 cases of cholera, involving 20 persons, have been reported so far this year. A 51-year-old man of Aichi prefecture died of cholera on October 9. He had made no trip abroad, either. The 66-year-old woman complained of diarrhea on the evening of October 10 and was accommodated in a nearby hospital. As a result of a stool test, she was found to have contracted cholera. She is making good recovery, according to the hospital doctors, and she was able to eat "okayu," well-cooked rice gruel, last Wednesday evening. The Chiba Prefectural Government Friday established a quarantine headquarters to investigate the source and route of infection, give physical checkups of her neighbors and disinfected the neighborhood of the old woman's home. /Tokyo KYODO in English 13 Oct 78 OW/

CSO: 5400

ACTIVITIES OF INDEPENDENT HYDATID RESEARCH UNIT IN TURKANA

Nairobi DAILY NATION in English 6 Oct 78 pp 17, 18

[Article by Calestous Juma]

[Text]

A DISEASE that causes an uncomfortable swelling of the abdomen by massive accumulation of fluid can be really frightening — to the victim, his family and acquaintances.

For Kenya's Turkana people, however, the effects of the debilitating hydatid disease have been with them almost since they can remember.

The Turkana, who number less than a quarter million, still lead what would be considered, by today's technological standards, a backward life.

Their traditional culture though, is rich and elaborate. The large number of necklaces worn by the Turkana women, weighing even several kilogrammes, their shaven sides of the head with a row of small plaits running down the centre, and the long elaborate goat skin skirt, have made the area an attractive "living museum".

Illiteracy, however, is rampant.

Their main diet is a mixture of blood and milk. Animals are not frequently killed for meat, and when this is done it is most likely to be a diseased one. This, and many other factors contribute greatly to the spread of hydatid disease.

The dogs and humans show great affection that is often envied by many visiting dog-lovers.

"I was surprised to learn that the dogs in Turkana have even developed the ability to guard young human infants whom they lick and care for as they do their own puppies," one tourist told this writer.

The close association of dogs, livestock and humans, is the most important factor in the spread of hydatid disease. The area — hard hit by the inadequacy of medical facilities — is reputed to have the highest incidence of this disease in the world.

But for some time now, things have been moving towards the slightly better in the fight against the disease. Dr. Marcus French, a man who has devoted his energy and resources to the war against this devastating disease, was the first to highlight the importance of establishing a hydatid research unit in this area in the northwest of Kenya, a sparsely-populated 27,000 sq. mile region bordering Ethiopia, the Sudan and Uganda.

ALARMING

"Most people do not know about hydatid disease and the few that do tend to regard it as a curious rarity not worth attention; yet this is a disease . . . which had done untold damage," says Dr. French.

The disease infects both humans and animals. The adult worm is nearly half an inch long and attaches itself to the first few inches of the small intestine of dogs. Infection rates are alarming: a small dog can have as many as 30,000 gravid worms — if arranged in a line, they would measure about 300 yards!

The worm has over 30 hooks in two rows and four suckers. Its body has four parts and it produces thousands of eggs which pass down the intestine and are passed out with the dog's faeces.

Once they are on the ground, they are disseminated very rapidly; within two hours of contamination, they can be found 200 yards upwind. It is still uncertain, according to Dr. French, how they travel against the wind — although he suggests insects may be responsible.

While on grass, the eggs are eaten by such animals as cows, sheep, goats and camels. In the animal's gut, the eggs hatch into minute thread-like larvae which penetrate the gut wall and enter the blood vessels in which they are carried away round the body.

They then get trapped in several organs of the body as the liver, lungs and brain. The larva then develop into cysts which grow in size and can contain large amounts of fluid.

The large cysts resembling fluid-filled balloons contain millions of new worm heads. If the diseased animals are killed and their meat eaten by dogs, the worm heads develop into adults, which later produce as many as 5,000 eggs in a week — thus continuing the cycle.

CONTAMINATED

The onset of this disease in man starts after swallowing the eggs which may have been attached to his fingers after stroking infected dogs, handling contaminated soil, or drinking contaminated water.

In man, the development of the worm takes place just as in animals. Unlike the dog, man cannot be infected after eating infected meat — only by swallowing the eggs.

In man the most affected organ is the liver which contains 50 per cent of all cysts; some 30 per cent in the lungs and the rest may be anywhere in the body. If a cyst is in the brain, epilepsy, sensory loss or paralysis of the part of the body controlled by the part of the brain inhabited by the cyst — may occur.

"In the abdomen," says Dr. French, "the usual presentation is an uncomfortable swelling, which can become gigantic — there is a record of a cyst containing 51 litres of fluid...."

If the lungs contain a cyst, the disease may eventually cause breathlessness, or the cyst may rupture and the large quantity of fluid may drown the victim.

In animals, the disease causes a great reduction of milk and meat production. This may lead to starvation or malnutrition to children born in areas adversely affected. Estimates indicate that if the disease is controlled, world protein food would be increased by 20 per cent.

The impetus to wipe it from the face of the earth goes back to the days of Hippocrates — the father-founder of Western medicine.

Iceland is the only country that has successfully managed to get rid of the deadly disease, through a painstaking process which took the country 50 years and 20,000 dogs to wipe out.

In Turkana, the process must start with the systematic education of the people. The mass destruction of dogs, as a means of controlling the disease, can easily be viewed as repugnant by the Turkana — who even attach emotional importance to them.

The surviving dogs are supposed to be fed on inspected meat, and are dosed with drugs that can destroy any worms that might have evaded the control measures. The programme also includes the licensing of all dogs. In Turkana, the measures have to face many obstacles; a dog's licence may look ridiculous to many of the nomads.

In Iceland, the government made sure that animals were eaten while still young — before the cysts had enough time to develop. The Turkana, who rarely kill

young animals, have higher chances of spreading the disease to their loved dogs.

If the human aspect of the disease is viewed, Dr. French often comes in the mind; his determination and devotion made it successful for him to establish the world's first completely independent hydatid research unit, in Turkana, sponsored by the voluntary African Medical and Research Foundation, the Flying Doctor people.

The purpose of the research project was "to alleviate an urgent local health problem, and also produce results which help to stop the vast losses of valuable nutriment which are being caused by the disease."

Since the fight against this disease in humans involves complicated surgery, the research unit aims at working out drugs which will destroy the cysts at an early stage rendering surgery unnecessary.

The researchers are also working on preventive inoculation drugs which will make the residents free from hydatid infection. The research project is of international importance because the disease is not only a Kenyan problem — but a world issue.

For several years, AMREF, (which also incorporates the East African Flying Doctor Service) has been offering surgical services to the victims of this disease. The Belgians have also introduced a drug which is thought to be a breakthrough.

The research unit is situated at Lodwar. Its progress has been affected by problems of supply. The cost of the building is 1,000,000/-, and half a million shillings is marked for equipment. The two have been financed by the Oxfam and the Commission of the European Communities (CEC).

While the Kenya Government arranged for the provision of an X-ray costing 120,000/- and a scientific officer, Dr. Alex Chemtai, the unit's recurrent's expenditure is being provided by the British Ministry of Overseas Development.

A spokesman of the unit said the success of the projects owes a lot to the help received from local civil servants. Members of Parliament and medical and veterinary personnel.

Since the use of pamphlets to educate the Turkana on the control of this disease is rendered ineffective by the high rate illiteracy, one of the most effective ways of spreading the message is by mobilising influential members such as chiefs, teachers, policemen and medical staff.

MALAYSIA

BRIEFS

CHOLERA IN PERAK--Ipoh, Tues--A total of 25 new cases of cholera have been reported in the State over the last few days, a State Health Department spokesman said today. Twenty of the cases were in Kuala Kangsar, three in Kampung Gajah and two in Grik. The spokesman said the latest cases, reported last Friday, were being treated at the nearest hospitals. The situation in the State was under control, he added. He cautioned the public, especially those living along the Perak River, to be careful when taking water from it. [Text] [Kuala Lumpur NEW STRAITS TIMES in English 20 Sep 78 p 1]

CSO: 5400

PORTUGAL

OUTBREAK OF TYPHOID REPORTED IN RIO MAIOR

Forty Cases Initially

Lisbon Domestic Service in Portuguese 0100 GMT 8 Oct 78 LD

/Text/ The outbreak of typhoid fever which was discovered in the area of Rio Maior has led to the hospitalisation of another person who is thought to have caught the disease. According to ANPO, about 40 cases have been confirmed in laboratory tests, while the results of the analysis of additional patients is expected sometime soon. The number of cases already confirmed and those that are still uncertain total well under 100.

Meanwhile, the health authorities are awaiting the results of tests run on the region's public water supply, which is thought to be the principal source of the disease.

No New Cases Reported

Lisbon Domestic Service in Portuguese 1300 GMT 8 Oct 78 LD

/Text/ The outbreak of typhoid fever detected in the Rio Maior area appears to have remained stationary in the past few hours, and there are no reports of further patients having been admitted to hospital. According to statements made to ANPO by the clinical director of Rio Maior Hospital, the situation appears to have entered a stationary phase, with tendencies to improve. The patients' condition is developing normally, and so far nobody has died, it not being expected that such a thing will happen, provided that no sudden complications arise, hospital sources said. Some 40 cases have been confirmed so far, and the result of analyses carried out on a few other patients is still unknown.

No Further Developments

Lisbon Radio in Portuguese to Europe 1930 GMT 10 Oct 78 LD

/Text/ The endemic outbreak of typhoid fever, first reported in the region of Rio Maior and subsequently linked to a few cases detected in Lisbon, remains stationary.

The General Directorate for Health has once again declared that there is no question of an epidemic but merely of a few explicable cases of the disease. Typhoid fever is endemic in Portugal, and cases are commonly reported every week from Lisbon and other populated areas of the country where basic sanitation is extremely deficient.

CSO: 5400

RHODESIA

BRIEFS

MEASLES THREAT--Measles has become a growing new killer menace in Rhodesia through a combination of war dangers, political intimidation and ignorance. A member of the Government's medical team, Dr Louise Westwater, yesterday appealed to black mothers to bring their children to the nearest state-run clinic for free inoculations. Measles, almost scoffed at as a "nuisance" childhood illness by white families, can often prove a killer among black children widely affected by malnutrition, reports Iana. Refugees. As "refugee camps" have sprung up around Salisbury in recent months, housing in shanty towns of plastic and cardboard, a combination of genuine refugees from war zones and various unemployed, so the danger of an epidemic has grown. But government health teams touring the black townships are having only limited success in their campaign to vaccinate as many children as possible, particularly those under three who are the most likely to die if the measles virus gets them. "We are not really sure why", said Dr Westwater, Provincial Medical Officer of Health for Mashonaland, "but we know there is some political intimidation". Measles is not a notifiable disease, but from reported cases it is known it killed 567 children in 1976, then more than doubled to 1 237 last year. [Text] [Salisbury THE HERALD in English 27 Oct 78 p 3]

CSO: 5400

SEYCHELLES

BRIEFS

ELIMINATION OF MOSQUITOES--Mosquitoes will breed anywhere there is just a little water. This normally means that they breed in discarded tins, bottles, old car tyres and similar rubbish. In spite of the drought, there is sufficient water available in the marshes and pools, where a river would normally flow, for profuse mosquito breeding to take place. There are, at the moment, a few patients who are suffering from a disease which may be dengue. This spreads by mosquitoes biting a person who is sick with the disease and later biting a healthy person, at the same time injecting some of the dengue virus into that person. In an attempt to reduce the spread of the disease, over the next few days the Public Health Section will be going around populated areas spraying to kill as many mosquitoes as possible. The spray is not harmful to human beings so that the general public do not have to take any special precaution. It must be realised, however, that the spray will not kill all mosquitoes. Every one is requested to assist the campaign by collecting and burying their rubbish and destroying the breeding places of mosquitoes. With everyone's cooperation it should be possible to reduce the risk of dengue spreading quite as widely as it has done in the past. [Text] [Victoria NATION in English 5 Oct 78 pp 1, 2]

CSO; 5400

SOUTH KOREA

BRIEFS

HEMORRHAGIC FEVER--Patients suffering from Korean hemorrhagic fever are increasing in the Kyongsang-pukto area these days. Six hemorrhagic fever patients including an 18-year-old youngster living in Yechonkun had been hospitalized at the Andong Provincial Hospital and Songso Hospital during this month as of yesterday. All of the six patients have been suffering cold symptoms and abnormal changes in blood pressure and in evacuating the bowels over the past 20 days, the hospitals said. [Text] [Seoul THE KOREA TIMES in English 21 Oct 78 p 8]

CSO: 5400

THAILAND

BRIEFS

MALARIA CLAIMS LIVES--Bangkok, Monday--A senior Health Ministry official said today that malaria had become a major killer disease in Thailand, claiming 5,000 lives a year. Dr Manatsawi Unhanan, director-general of the ministry's communicable disease control department, told reporters that about 500,000 cases of malaria were reported in Thailand each year. After earlier success in fighting malaria, World Health officials have noted a resurgence in the disease in many parts of the world, he said. The Thai official said effective control of the disease was made difficult by large price increases for DDT insecticide and anti-malaria drugs. [Text] [Accra GHANAIAN TIMES in English 26 Sep 78 p 2]

CSO: 5400

VIETNAM

HAIPHONG INTENSIFIES DRIVE AGAINST MALARIA

Hanoi SUC KHOE in Vietnamese 5 Sep 78 p 7

[Article: "Haiphong Is Determined to Eradicate Malaria"]

[Text] Considering the concrete situation at the local level, the malaria, parasite and insect station has shown its determination to eradicate malaria in 1978.

Since the beginning of the year, the station has sent many groups of cadres into key places such as Cat Ba city, the deep creek in Tran Chau village, Cat Hai, the Gia Minh new economic zone, work sites of Minh Duc, Tien Lang, Vinh Bao...where new coast land is being reclaimed. Along with technical cadres of the station, the schoolchildren of medical classes 9B, testing 4 of the Haiphong Medical High School, have come down into these localities to detect malaria, and organized on-the-spot distribution of drugs to cure and prevent malaria.

At the deep creek of Tran Chau, Cat Hai, and in Cat Ba city, the groups have worked closely with local medical cadres, administering oral medication to prevent malaria to more than 90 percent of the people.

At the Gia Minh new economic area, the groups have mobilized more than 80 percent of the people to take oral medicine and 70 percent to submit to malaria blood test.

At the economic area of Tien Lang, Vinh Bao, where new coast land is being reclaimed, our medical cadres have distributed and administered on the spot 38,733 pills of drugs to cure or prevent malaria of various kinds, sprayed antimosquito chemicals on 443,000 square meters, and protected 4,000 families totalling more than 20,000 people. In general, malaria eradication is being intensified in Haiphong, particularly at key places and work sites for new land reclamation along the coast, and new economic areas. Preliminary results indicate that the number of people presenting clinical symptoms of malaria has sharply decreased, as compared with last year's corresponding period.

9213

CSO: 5400

ARGENTINA

SWINE FEVER WORRIES MISIONES PROVINCE

Buenos Aires LA NACION in Spanish 23 Sep 78 pp 1-2-2a

[Excerpt] A serious danger threatens one sector of the national livestock economy: the nearest outbreak of African swine fever is located inside Brazilian territory, some 35 kilometers from the border at Misiones.

For this reason, the national Secretary of Agriculture and Livestock several days ago banned the transport of swine, swine products and swine by-products from Misiones to Corrientes, and from either province to the rest of the country.

In view of this matter's great importance, we talked with a professional veterinarian who recently attended a course in the United States concerning this disease. Dr Martina Segura de Aramburu, who serves as virology coordinator of laboratory services of SENASA (SELAB), was sent to the United States by the Argentine Government. The course was held at the Plum Island Institute, a center specializing in exotic diseases which offers maximum security conditions, with perfectly equipped laboratories.

To get an idea of the speed with which it spreads, perhaps it is enough to point out that at the end of August, 13 states in Brazil were affected by African swine fever. The danger for us is that three of them border on Argentina: Parana, Rio Grande do Sul and Santa Catarina.

9077
CSO: 5400

BRAZIL

CAMPAIGN AGAINST AFRICAN SWINE FEVER GROWS

African Swine Fever Hits Porto Alegre

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 28 Sep 78 p 41

[Text] African Swine Fever has reached Porto Alegre 4 months after arriving in this country. This caused beginning of slaughter of gunshot yesterday of 816 hogs belonging to the Santa Cruz farm, belonging to the City of God Charitable Organization. The slaughter was kept quiet by strong police security. According to the chairman of the Committee for Eradicating Hog Cholera in Rio Grande do Sul, Felismino Kappel, the attempt to hide and to prevent the publication of the slaughter was justified "in order not to prejudice the marketing of pork, which has been so far down and only now was beginning to recover."

This is the sixth focus of African Swine Fever found in Rio Grande do Sul. It was only on Saturday that the health authorities decided to slaughter 283 hogs belonging to a farm in the municipio of Gravatai, 30 kilometers from Porto Alegre. This decision brought the number of hogs slaughtered up to 1,250.

According to the administrator of the farm where the hogs were slaughtered yesterday, Mauricio Vian, whose intention to show to the press "the conditions of hygiene in which the animals were raised" were frustrated, two hogs got sick in the middle of June and as there was a request that the owners communicate any suspicion of Swine Fever to the authorities, he informed the technicians of the Secretariat of Agriculture. The latter collected samples which were sent to the Fundao Island Laboratory in Rio. Because of proof of the illness, the farm was now sealed off and the animals killed.

The delay in the result of the analysis and the attempt of the authorities to hide this new focus of hog cholera have been severely criticized by the technicians, who believe that tests should be rapid and believe also in full publicity being given to the appearance of the disease as a means of permitting effective actions to be taken for the eradication of African hog cholera.

Citing the example of Cuba, where 460,000 hogs were slaughtered within a radius of 15 kilometers of any infected area, technician Luis Carlos Pinheiro Machado criticized once again the timidity with which the problem has been treated in this country.

African Swine Fever Research

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 27 Sep 78 p 28

[Excerpt] The Brazilian Enterprise for Agricultural Research [EMBRAPA] will begin a significant research program on African Swine Fever at the beginning of next year. Its principal objective will be the eradication of the illness in the country, according to a statement made yesterday by technician Luis Sergio Coelho. Mr Coelho is the director of the National Center for Swine Research, located in Concordia, Santa Catarina, which will coordinate the program.

According to technicians of the Ministry of Agriculture, new foci of Swine Fever continue showing up, although at a lower rate. In spite of the great range of the disease which has already been found, Luis Sergio Coelho believes that there are still possibilities of wiping it out. "It will not be as easy as we hoped and it may be a little slower. However, stamping it out must be the principal objective. We cannot accept the idea of living with it."

Depending on the result of the research which has already been done, Luis Sergio believes that the possibility may arise of a vaccine being prepared, "but the perspectives are not very encouraging in view of the failure of some international institutions. The manufacture of a vaccine will not be attempted as a first step."

In the Legislative Assembly of Parana, Deputy Deni Lineu Schwartz (MDG-- [Brazilian Democratic Movement]) yesterday denounced irregularities in the operations of pork marketing in the southeast of the state. This has been done through the issuing of certificates that the hogs have been inspected on arrival showing higher weights and prices than those really paid to the hog farmer. This is a way to help the slaughterhouses obtain financing of the special line of credit for slaughter, which was created by the government after the outcrop of African Swine Fever.

That line of credit, amounting to 500 million cruzeiros, was intended by the government to go to the slaughterhouses for the purchase of hogs and the maintenance of a minimum price. Up to now, although the volume of purchases in the region has increased, the prices have not responded. The slaughterhouses have a right to financing of up to 80 percent of the value of the purchases, and that is the reason for the falsification of the entry inspection certificates.

Reaction Against Slaughter of Swine Begins

Sao Paulo VEJA in Portuguese 13 Sep 78 pp 122, 124, 126

[Text] Once the original alarm, the perplexity and the rebellion had passed, the swine breeders finally have begun to react against the spreading African Swine Fever with practical measures. Four months after the announcement of what would be the first focus of the disease in Paracambi (Rio de Janeiro) it continues to be an enigma. The mortality is very low (and, in many cases, the symptoms can be attributed to poisoning, pneumonia or the common hog cholera) and it is practically noncontagious--where one hog dies and the rest remain healthy. There is no doubt, however, it has had devastating effects. Up to now nearly 45,000 animals have been exterminated, pork consumption has fallen radically and the image of the country as a pork producer has been seriously shaken. In any event, it is possible that the picture may come to be changed with what happened last week.

On Tuesday, Judge Orlando Cavalcanti Neves, of the Second Judgeship of the Federal Justice System in Pernambuco, granted preliminary relief to Emanuel Salvador Teixeira, a doctor and breeder, delaying for a later judicial evaluation the extermination and cremation of the 562 hogs on his Sao Paulo farm at kilometer 16 on the Aldeia highway, in the metropolitan region of Recife. Teixeira plans to file a suit for indemnity against the Federal Government for losses and damages. He argues that the price of 353 cruzeiros per animal, established by the Executive Commission for the Eradication of African Swine Fever, is laughable compared to the real value of 872 cruzeiros that he puts on his hogs which, in fact, are pedigreed breeding stock. In the meantime, the question of the prices is not the most important aspect of the case. The greatest problem consists in his own doubts in relation to the existence of the plague.

The Pernambuco doctor and swine breeder related the following episode to VEJA: In a room of the State Delegation of the Ministry of Agriculture in Pernambuco, a technician was explaining how the illness had been discovered: "It happened that an American technician came to Rio de Janeiro to conduct on-the-job training. By chance he was in an institute near a pigsty which was feeding the pigs with food scraps from an aviation company. One animal died and was thrown into the garbage. By chance, that pig was taken to the American technician and analyzed. It was African Swine Fever." Teixeira gives his word that the sequence of the words "by chance" is rigorously faithful to the events.

"It Does Not Exist"

The northeastern swine breeder discounts, as coincidental, the fact that the illness erupted just at the moment the country was reaching a significant position in the international market with regard to swine breeding, being able to compete on equal terms with other large producers. Suspicions of this kind are also expressed in Tres Passos (Rio Grande do Sul), the municipio with the largest swine population in the country (100,000 head), where this Tuesday a decided movement was initiated for finding out, once and for all, what is

going on. A committee made up of breeders and local authorities is making a tour through a number of cities in order to rally technicians and researchers for a discussion meeting, in Tres Passos itself, before the end of the month, Mayor Egon Lautert was telling VEJA last Friday that the first objective is "to determine if it really is African Swine Fever or not."

The first focus of the plague in Rio Grande do Sul, according to the Agriculture Ministry, was in Tres Passos. Forty days after one animal died, the verdict was received in the laboratory in the Virology Institute in Rio de Janeiro that it was African Swine Fever, the remainder of the herd of breeder Waldemar Ritter was enjoying good health. That was one of the motives that brought together producers from 23 municipios in Tres Passos on 22 August. At the close of the meeting, in a four-page document, the breeders complained about the way that the problem had been approached and solved: "To deny definitely and with absolute assurance the existence, up to this date of any focus of African Swine Fever in the municipio of Tres Passos, and to deny the Waldemar Ritter episode."

In Brasilia, answering in the name of the Coordinating Group for Combating African Swine Fever, Animal Health Defense Secretary Ubiratan Mendes Serrao informed VEJA at the end of last week that those facts do not alter the position of the government. In other words: 1) that the illness really did come to Brazil, although contrary to what was initially announced, it was in a mild form--the virus, proceeding from Europe, was probably in an attenuated form due to repeated vaccinations against ordinary hog cholera to which the swine population was submitted; 2) that the policy of exterminating animals will continue wherever a focus of the illness is identified through the analyses of the Rio de Janeiro laboratory. In this way the government considers the measures adopted a month ago in a meeting of several official organs as valid, although plans to perfect the struggle against the mysterious plague. It remains to be known if the measures will have any effect now when the producers are reacting in a concrete way.

12116
CSO: 5400

ISRAEL

BRIEFS

RIFT VALLEY FEVER--Rift Valley fever, a dread disease which has hit both animals and humans by the thousands in the last few years, has appeared among some flocks in Sinai, Itim reported yesterday. Public health officials have been concerned about the spread of the disease, which can cause high fever and bleeding around the eyes, resulting in blindness in some cases. The fever was recently identified in central Africa and has slowly made its way north. Health Ministry and army officials have been checking the herds in Sinai and attempting to control mosquitoes, which are also believed to be carriers. Recently, it was learned, the Egyptians have offered their full cooperation and some samples of animal tissue, believed to be infected, have been sent to Egypt to be checked. According to the Itim report, which Health Ministry officials would neither confirm nor deny, the chief veterinary officer in the military government has banned the transport of cattle from Sinai into the northern parts of the country. [Text] [Jerusalem THE JERUSALEM POST in English 18 Oct 78 p 2]

CSO: 5400

MOZAMBIQUE

FOOT-AND-MOUTH DISEASE CONTROLLED

Maputo NOTICIAS in Portuguese 10 Oct 78 p 1

[Text] A few days ago, there began a gradual lifting of the ban on sales of livestock for slaughter in the cattle-raising areas of Manhica, Chokwe, Magude and Moamba, which have been isolated for nearly a year owing to a serious outbreak of focuses of foot-and-mouth disease detected in them.

By the end of this year, those areas will be open for the movement of herds to the sales markets. Only the district of Chibuto, which has likewise been affected, will continue with the ban.

This outbreak of foot-and-mouth disease, which originated in the border area between Magude and the South African hunting reservation of "Kruger Park," caused serious damage to the nation's economy, and made it necessary to procure vaccines and disinfectants for spraying vehicles, as well as other facilities, consisting of technical cadres, vehicles and fuels used in the health campaigns carried out in the affected areas, in addition to the problems that it caused with respect to the population's meat supply.

In order to prevent any future outbreak of this disease from assuming similar proportions, a committee has been formed which will study a new protective system that will be capable of guaranteeing greater efficiency.

2909

CSO: 5400

VIETNAM

STATISTICS ON LIVESTOCK DISEASES IN LY NHAN DISTRICT

Hanoi TAP CHI HOAT DONG KHOA HOC in Vietnamese No 4, Apr 78 pp 13-14

[Article by Dao Trong Hang: "The Ly Nhan District Party Committee Guides the Application of Veterinary Scientific and Technological Advances in Agricultural Production"]

[Excerpts] Ly Nhan District in Ha Nam Ninh Province is a district located within the lowlands where the humidity is very high; within the district, livestock and poultry epidemics are persistent, complicated and very serious; each year, some 50,000 to 60,000 of the 110,000 chickens within the district die from Newcastles Disease; in 1969, Nguyen Ly Village lost all of the several hundred hogs on its farm due to an epidemic; in 1970, a pocket of anthrax developed in Duc Ly Village killing 17 buffalo; in 1973, a pocket of hog cholera developed in Xuan Khe Village killing more than 60 hogs at one time, etc.

In addition, parasites also cause very serious harm to livestock herds, especially hogs. In our district, each meat hog loses an average of at least 5 to 7 kilograms of weight due to liver flukes and roundworms.

Preliminary estimates show that the damage caused to the livestock herds and poultry flocks in Ly Nhan District each year by epidemics is very high; roughly 200 tons of pork, 50 tons of chicken meat and hundreds of draft buffalo; at official state prices, this damage has been estimated as costing roughly 800,000 dong. Thus, as livestock production develops, the matter of preventing and combating epidemics becomes increasingly pressing.

Only about 10 percent of the chicken flock within the district has been vaccinated against Newcastles Disease.

7809
CSO: 5400

VIETNAM

BRIEFS

NEWCASTLES DISEASE--One serious epidemic which is present throughout the year but is generally most serious during the winter-spring season and which annually kills millions of our country's chickens is Newcastle Disease.
[Excerpt] [Hanoi TAP CHI HOAT DONG KHOA HOC in Vietnamese No 4, Apr 78
p 10] 7809

CSO: 5400

VETERINARY SERVICE FACES TRANSPORT SHORTAGE

Lusaka TIMES OF ZAMBIA in English 11 Oct 78 p 5

[Text]

THE Department of Veterinary and Tsetse Control Services on the Copperbelt has been hit by a critical shortage of transport and dog vaccines and unless something is done to rectify the situation, the department's activities in the province may ground to a halt.

This warning was given in Ndola yesterday by Copperbelt provincial veterinary officer, Dr Forster Mungaba who said the department had only two Landrovers to cater for eleven stations in the province.

"We are finding it extremely hard to visit all areas of operations because of this critical shortage of transport and unless something is done to correct the situation, our activities in the province may ground to a halt," he stressed.

Mr Mungaba explained that as a temporary measure, the department was now seriously thinking of buying bicycles for various stations to enable officers continue with their day to day duties in the absence of motor vehicles.

He however added that bicycles would not be adequate because officers would not be able to reach places far away from their stations adding, "this could be disastrous

as disease knows no boundaries."

On the shortage of vaccines, Dr Mungaba said the situation was so bad that people who brought their dogs for vaccination were being turned away.

"We are turning away scores of people who bring their dogs for vaccination because the dog vaccines are not just there and furthermore, indications from the

department's headquarters in Lusaka are that the vaccines might not be available shortly," he added.

BOTSWANA

BRIEFS

TSETSE FLY UNDER CONTROL--Tsetse flies used to plague the Okavango Delta, in northwest Botswana. Between 1967 and 1969, ground-spraying of dieldrin was carried out in the delta, but tsetse flies in the areas inaccessible to ground-spraying multiplied and began to spread into the tsetse-free areas. In 1972, experimental aerial spraying with endosulphan over vast tracts by the Botswana Government proved very successful. By April 1978, no tsetse flies could be found inside the experimental area. When evaluating methods of tsetse control, consideration was given to the ecological impact. The insecticide currently in use in Botswana is endosulphan, a non-systemic insecticide and a member of the chlorinated hydrocarbon group. It is fairly rapidly discharged in animals, does not accumulate in milk, fat or muscle and is hydrolyzed slowly to alcohol and sulphur dioxide in sunlight. This makes endosulphan an excellent insecticide to control and eradicate tsetse flies. Botswana's fight to control and eradicate the tsetse fly has attracted the attention of many African countries and recently a leading pest-control official of Botswana gave an account of tsetse-eradication work to the Eastern and Southern African Subregional Conference on Cooperation in the Control of Animal Health and Promotion of Livestock Production. [Text] [Peking PEKING REVIEW in English No 39, 29 Sep 78 p 29]

CSO: 4420

SUDAN

BRIEFS

LOCUST INFESTATION--These days, the number of locusts and small insect pests in the capital is increasing. Some of the streets are filled with a huge number of dead locusts, from which a terrible odor arises. In these circumstances, it is not unlikely that medium-sized locusts could be found inside a loaf of bread or a sandwich. The first indications [of this] came to us yesterday, when a citizen brought us a cheese sandwich. The complete body of a medium-sized locust was lodged in the bread. We ask owners of bakeries and sandwich shops to be more vigilant until the [locust] plague ends. [Text] [Khartoum AL-SAHFAH in Arabic 4 Oct 78 p 10]

CSO: 5400

SPREAD OF BROWN PLANTHOPPERS DETAILED

Hanoi KHOA HOC VA KY THUAT NONG NGHIEP in Vietnamese No 6, Jun 78 p 429

[Article by Nguyen Van Huynh: "Several Results of the Study of Brown Planthoppers (*Nilaparvata lugens*, stal.) in the Mekong River Delta"]

[Excerpt] I. The Development of Brown Planthoppers in Fields

At present, brown planthoppers are considered to be the insect that causes the most serious damage to rice at many places in the Mekong River Delta. According to Ngoan (1970), brown planthoppers became a danger to rice beginning in 1965 with the second most dangerous pest being green planthoppers. According to Xuan (1975) and Huynh (1976), the brown planthopper population began to explode in 1971 as evidenced in the "hopper-burn" which caused serious damage to rice at many places, such as Chau Doc, Long Xuyen, Can Tho, My Tho and Long An. Prior to 1975, brown planthoppers only appeared during the rainy season; however, in recent years, brown planthoppers have also been seen during the dry season and have caused extensive damage to winter-spring rice crops in Long Xuyen and Can Tho. In Tien Giang in late 1976 and early 1977, brown planthoppers even damaged such IR rice varieties with brown planthopper resistant genes as TN 73-2, IR26, IR28, IR29 and IR30 during the winter-spring season and also during the summer-fall season. At the same time, a number of districts in An Giang and Dong Thap Provinces which practice the intensive cultivation of rice also experienced heavy damage by brown planthoppers during the recent summer-fall season. Tien Giang is the province that has the highest level of intensive cultivation of rice in the Mekong River Delta; Tam Nong and Hong Ngu Districts in Dong Thap Province and Phu Tan District in An Giang Province are high yield rice areas that put very much land under the cultivation of summer-fall rice. This high level of intensive cultivation creates a continuous presence of hosts in fields and this continuous presence leads to tremendous increases in the density of brown planthoppers. Due to the present level of farming in these areas, pockets of brown planthoppers cannot be totally extinguished, consequently, brown planthoppers are able to spread to the 10th month season. Ben Tre, a province which lies below Tien Giang Province, also experienced heavy 10th month crop damage in late October 1977. The planthoppers were detected late (only after they had matured), consequently, a number of the

insects flew away and laid eggs which, when they hatch, will return to infest fields. In Cuu Long Province, which lies below Ben Tre Province, the majority of the 10th month rice crop in the districts on the banks of Co Chien River in the northern portion of the province was heavily damaged during the middle 2 weeks of December, 1977. The planthoppers in this area were also detected late, that is, after they had matured, consequently, they spread to the districts in southern Cuu Long Province, such as Tam Binh and Tra On Districts, and now are present in high densities in the northern provinces of Hau Giang Province along the Hau River.

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BROWN PLANTHOPPER VIEWED AS MAJOR THREAT TO RICE CROPS

Hanoi KHOA HOC VA KY THUAT NONG NGHIEP in Vietnamese No 6, Jun 78 p 416

[Article by Bui Van Ich: "Concerning the Eradication of Brown Planthoppers of Rice in the Southern Provinces"]

[Excerpt] The principal pests and diseases of rice in the southern provinces are: brown planthoppers, stinkbugs, stem borers, rice blast, stem rot, etc. Each year the damage caused by these pests and diseases reduces yields by 20 to 25 percent; the damage caused by brown planthoppers reduces yields by roughly 15 percent.

The brown planthopper is one of the most important pests in Southeast Asia. In the southern provinces of our country, brown planthoppers have developed and caused damage in recent years to all three rice crops, the spring, summer-fall and 10th month rice crops, especially in the coastal provinces of former Zone 5 and many provinces in the Mekong River Delta. In 1971, brown planthoppers appeared over large areas of the Mekong River Delta; in 1974, they heavily damaged more than 97,867 hectares of IR rice in many southern provinces; during the 1977 summer-fall season, brown planthoppers damaged more than 4,000-5,000 hectares of rice in the coastal provinces of former Zone 5. In mid-November and December 1977, brown planthoppers reached plague proportions on tens of thousands of hectares and caused the complete loss of thousands of hectares of 10th month rice and winter-spring rice in the provinces of Ben Tre, Long An, Tien Giang, Cuu Long, Hau Giang, etc. Hundreds of tons of special purpose insecticide, tens of tons of diesel oil and dried oil and tens of thousands of mandays were mobilized to exterminate them. It is clear that the brown planthopper poses a major threat to the rice production sector in the southern provinces, especially in the provinces of the Mekong River Delta.

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DEVELOPMENT OF INSECTICIDE INDUSTRY OUTLINED

Hanoi TAP CHI HOAT DONG KHOA HOC in Vietnamese No 4, Apr 78 pp 17, 19-21

[Article by Nguyen Quy Sanh: "The Chemical Measures of Protecting Crops and the Production of Agricultural Insecticides"]

[Excerpt] Our country's agriculture uses roughly 8,000 to 9,000 tons of chemical insecticides (that is, active ingredients) per year; however, we are still unable to fully meet the most pressing needs for insecticides. The strong and comprehensive development of agriculture means that these needs will be larger and more complex. It has been projected that, by 1980, we will require 38,000 to 40,000 tons of hundreds of different types of insecticides. Our chemical industry, which is now in the stage of construction, can only produce a few simple insecticides in small quantities: technical 666, copper sulfate, copper oxichloride, aluminum phosphite and a few other minor chemicals. We have several insecticide manufacturing installations equipped with rather good machinery and equipment that can manufacture the principal products needed (in the form of powders, emulsified liquids and granules) and have the capacity to meet the majority of the needs we expect to face in 1980. At present, the majority of the insecticides being used by us must be purchased from foreign countries, primarily in the form of technical chemicals which are processed domestically into finished products. Due to limited import capabilities and the difficulties involved in finding sources of goods, we cannot acquire all of the insecticides we need.

A comparison of the present production and manufacturing of agricultural insecticides and the needs of agricultural production clearly shows that we must rapidly develop the insecticide production industry, most importantly the production of active ingredients.

This industrial sector is characterized by consisting of many different types of products produced in varying and unstable quantities (due to changes in demand); generally speaking, the industry's products have a complex chemical structure (the more good properties a product has, the more complex its structure is), are difficult to produce and require many different types of chemicals used as intermediary raw materials and many

different production techniques requiring a very high degree of toxicity safety. Therefore, it is necessary to construct production installations which have highly flexible production lines and are located near (or within) basic chemical production installations, including installations producing intermediary products, thereby establishing individual groups that are efficient in terms of their structure as well as economic-technical-safety management. The structure as well as the order and rate of the development of the agricultural insecticides industry must lie within the framework of the structure, order and rate of construction of the chemical industry of the entire country.

--In the immediate future, it is necessary to rapidly build installations producing copper oxichloride from ore and expand the installations producing polyclopine from pine oil.

Agriculture requires a large quantity of polyclopine as an insecticide for pests of cotton and several other industrial crops. Polyclopine is produced by adding hydrochloric acid to alpha-pinene (extracted from pine oil) to form bornyl chloride to which chlorine gas is added to produce the finished product. All of the raw materials required, chlorine gas, hydrochloric acid and pine oil, are available domestically. We must allocate an appropriate percentage of pine oil to these installations. We have domestic experience regarding technology and equipment and are fully capable of resolving the problems we face in these areas.

--Copper oxichloride is used to eradicate blight of western potatoes, tomatoes and several other crops. At present, we are producing copper sulfate and copper oxichloride from scrap copper, consequently, the supply of raw materials is not stable. Moreover, it is more economical to resmelt scrap copper. It is very efficient to produce copper oxichloride from low grade ore. From the point of view of raw materials, equipment and production technology as well as the properties of the finished product, this can be done very easily.

It is possible to consider and adopt a plan for constructing the following production installations in the next 3 to 5 years:

--Expanding the capacity (or constructing new capacity) of the installation producing technical 666, which is now used as an insecticide within agriculture but will later be used in the forestry trade; this project can be completed rapidly because the equipment and technology involved are not very complex and there are many years of domestic experience in this area; as regards raw materials, we will have to import benzene (if we do not import benzene, we must continue to import technical 666 as we do now).

--Producing 2,4-D for use as an herbicide, primarily an herbicide for wet rice, especially in those areas where the broadcast sowing of rice is being expanded. We should, for the time being, import phenol and monochloroacetic acid as this would make it relatively easy to organize the production of this product. Practically all of the equipment needed can be manufactured

domestically. We also have experience in producing this chemical on a small scale; therefore, this installation can be rapidly constructed. We have planned the construction of an installation producing 2,4-D at the Soda-Chlorine Enterprise; however, this installation will not be in production until the middle of the next 5-year plan. Moreover, once it has been constructed, it will only be large enough to produce enough herbicide for roughly 800,000 hectares of rice. The construction of another installation will surely not pose any obstacles in the future.

--Producing Zineb (or Mancozeb, that is, Dithane M 45) to treat diseases of western potatoes, tomatoes and several vegetable and industrial crops. For the time being, we can import the raw materials carbon disulfide and ethylenediamine (in the future, carbon disulfide will be received from viscose fiber production installations); the raw material zinc salt (and manganese salt) is available domestically; and both the equipment and technology involved are of average complexity. On the basis of importing several miscellaneous pieces of equipment, we can rapidly design and construct a Zineb production line.

--Distilling Lindane and producing Na-PCP: we should use Lindane in place of technical 666 in order to reduce the harm caused to the environment and agricultural products, especially in areas raising tuberous crops (western potatoes, sweet potatoes) on 10th month rice fields sprayed with 666. The very large quantity of residue of the Lindane distillation process (up to 86-88 percent of the total quantity of technical 666) will be used as a raw material in the production of Na-PCP for use as an herbicide of industrial crops, a wood preservative, an agent to protect rattan, bamboo and rush products against mildew, etc. As regards raw materials, we must, for the time being, import methyl alcohol for use as a circulating solvent; the technology involved is of average complexity but is within our grasp (we have completed the necessary research and adopted an economic-technical plan). If we import a number of pieces of miscellaneous equipment, we can construct an installation distilling Lindane and producing Na-PCP.

--Producing DDVP and Naled for use as an agricultural insecticide and a mosquito spray in public health and sanitation work. There are two methods of producing DDVP: putting trimethyl phosphite into reaction with chloral or dimethyl phosphonate into reaction with chloral to form Dipterex and using soda to convert Dipterex into DDVP. We plan to build an installation producing DDVP by the second method. This installation will use the same raw material as the methylparathion (metaphos) production installation, namely, phosphorus trichloride (from phosphorus and chlorine). This method is suited to our technical conditions and raw material capabilities; in addition, it also yields Dipterex, which can be used as an agricultural insecticide, a worm medicine and disinfectant in livestock production and a disinfectant for humans. However, we might have to wait until the middle of the next 5-year plan before products become available. The technology involved in the production of trimethyl phosphite (from phosphoric chloride, methyl alcohol and organic alkali) is rather complex and we are as yet unable to employ this technology. Consequently, if we select the first production

method, we will have to import trimethyl phosphite for a rather long period of time and we would have to build an installation producing chloral and one producing DDVP. At present, the construction of a DDVP production installation would only be worthwhile if it could be completed rapidly so that it could be put into operation 5 to 7 years before the large installation we plan to construct goes into production. Examined from this point of view, and if it is more advantageous to import Dipterex than DDVP, we should perhaps organize the production of DDVP from imported Dipterex. The technology and the equipment involved are simple in nature and a domestic production installation can be rapidly constructed. Naled is produced from DDVP and bromine. It is necessary to raise the matter of fully reclaiming the bromine at the project now under construction to utilize the water remaining in salt fields once the salt has been removed. The equipment and the technology involved in the production of Naled are not complex.

--Producing Kitazin to treat rice blast, especially of a number of new varieties of rice in central and northern Vietnam: this requires a production line for chlorinating toluene to make benzyl chloride, a diethyl (or diisopropyl) phosphonate production line and a finished product production line. The technology involved is of average complexity. However, because its capacity is not large, we can, if we agree to import a number of pieces of miscellaneous equipment, construct this chemical production installation. Technologically, we have completed the stage of small-scale research and are preparing for a large-scale experiment.

--Producing DDT for use as an insecticide in agriculture and forestry and to eradicate insects that spread disease. DDT production requires a line to produce chlorobenzene from benzene and chlorine gas, a line to produce chloral from ethyl alcohol, chlorine gas and sulphuric acid and a line to produce the finished product DDT from chlorobenzene, chloral and sulphuric acid + oleum. On the basis of importing several pieces of miscellaneous equipment, we can design and construct an installation producing DDT; chlorobenzene is also an intermediary raw material in the production of the insecticide methylparathion (the production of p-nitrophenol), the production of phenol and the production of numerous other organic chemicals. If demand is not high, we can, for the foreseeable future, import chlorobenzene and chloral, which are raw materials used in the production of such insecticides as Dipterex, DDVP, Naled and methoxychlor, the herbicide TCA (trichloroacetic acid), etc.

In addition to the relatively large-scale projects mentioned above, we can and must strongly develop the production of products that are required in small quantities but are very important, such as zinc phosphide to control rats, nicotine sulfate for use as an insecticide (which is especially needed at orange seedling nurseries), the miticides Kelthane, Genite, flowers of sulphur (which also acts as a fungicide), etc.

At the same time, we must make urgent preparations for the plan to virtually complete the insecticide production industry, a plan that can consist of the following:

--Building an installation to produce organic phosphates, an installation that comprises three primary systems:

- a) A system producing thiophosphates using the intermediary raw material dialkylthiophosphorus chloride. Phosphorus in reaction with chlorine yields phosphorus trichloride which, when put into reaction with sulphur, yields thiophosphorus trichloride which, when put into reaction with alcohol yields dialkylthiophosphorus chloride. In the immediate future, we will build an installation producing methylparathion from dimethylthiophosphorus chloride and P-nitrophenol because the raw material p-nitrophenol is readily available and inexpensive. Although diazinon and fenitrothion are better than methylparathion, we do not have the conditions needed to immediately begin producing these products on a large scale, rather, we must develop this production gradually.
- b) A system producing phosphates from the intermediary raw material dialkylphosphonate. Dialkylphosphonate is produced from phosphorus trichloride and alcohol. The immediate purpose of this system is to produce Dipterex-DDVP-Naled. Later, depending upon the raw material situation and needs, we can produce the various types of more complex chemicals. On the basis of this system, we can, at some time in the future, begin producing products from the intermediary raw material trialkylphosphite, such as mevinphos (0,0 dimethyl 2-methoxycarbonyl-1-methylvinyl phosphate), phosphamidon (0,0 dimethyl-2- clo-2 diethylcarbamoyl-1-methylvinyl phosphate), etc.

Within this system, it is also possible to produce such thio- phosphates as Kitazin and Kitazin-P.

- c) A system producing dithiophosphates from the intermediary raw material dialkyl dithiophosphoric acid. This chemical is produced by putting diphosphoruspentasulfide into reaction with alcohol. Diphosphoruspentasulfide is produced by putting phosphorus into direct reaction with sulphur. From dialkyl dithiophosphoric acid, we will produce various types of insecticides, such as Malathion (coordinated with the production of diethylester of maleic acid), Dimethoat (through reaction with 2-clo-N-methylacetomide) or Phenthoat (through reaction with ethyl-bromphenolacetate). This system will be constructed after the two systems mentioned above have been constructed primarily because the demand for these products is not large.

--Building installations to produce carbamates, beginning with the production of carbaryl followed possibly by the production of Bassa, Mipcin, and other chemicals of the same type. The two basic raw materials used in the production of this group of carbamates are phosgene (from carbon oxide and chlorine) and methylamine (from ammoniac and methyl alcohol). The phenol bases will be selected on the basis of needs and raw material capabilities. To produce carbaryl, the phenol base 1-naphtol is required, and we can begin producing this chemical at an early date.

--Building an installation to produce the phenoxy carbaxylic acids (2,4-D, MCPA, etc.). Plans call for this installation to be part of the soda-chlorine plant that will soon be constructed. It is also necessary to build a production line for monochloroacetic acid.

--Building an installation to produce dithiocarbamates (Zineb, Maneb, Mancozeb, Ziram, Thiram and so forth). The primary intermediary raw material of these products is dithiocarbamic acid which is produced from carbon disulfide and amines (dimethylamine, ethylenediamine).

--Building an installation to produce striazines (Simazine, Atrazine, Prometryn, etc.). The basic raw material used here is cyanchloride-- a product of the organic compounds industry which requires rather complex technology and is toxic. The second raw material used, amines, is also very difficult to produce. Therefore, although we need Simazine very much for use as an herbicide on corn and a number of other industrial crops, we must postpone its production until the next 5-year plan.

It is possible to visualize the installations mentioned above and those producing DDT, 666 and Lindane, polyclopine and Toxaphene, copper sulfate and copper oxichloride as the pillars of the insecticide industry of our country, an industry which we must build under the next one or two 5-year plans in order to firmly support the development of agricultural production. Of course, in addition to these installations, it is also necessary to build a number of other independent production lines to produce such products as the herbicide Dalapon, the agricultural product fumigant methylbromide and so forth as well as many other chemicals.

In order to steadily develop the agricultural insecticides industry and intensify the use of chemical measures to protect crops in support of the effort to bring about a leap forward in the development of agricultural production in keeping with the spirit of the resolution of the 4th Party Congress, particular attention must be given to the following several matters:

The chemical industry, in addition to building installations to produce agricultural insecticides, must adopt a plan for providing these installations and the others that will be constructed with raw materials. In particular, raw materials used in large quantities by many different sectors, such as benzene, phenol, ethyl alcohol, methyl alcohol, monochloroacetic acid, amines, carbon disulfide, phosgene and so forth as well as a number of organic solvents, such as the xylene, carbon tetrachloride and so forth, must be included within the common plan so that the problems regarding them can be gradually resolved. If these problems are not promptly resolved, we will find ourselves in a situation where, instead of only having to import a few products, we are forced to import many products, thereby making it difficult to put production on a stable basis.

As regards agriculture, when selecting insecticides to put into large-scale use, it must, in addition to other factors, give appropriate attention to the ability to produce these chemicals domestically. The present importation of chemical agents must also perform the task of preparing the market for the development of domestic industry. Generally speaking, we will be unable to produce the various types of chemicals very well for the foreseeable future, consequently, it is necessary to accelerate our technical research into their use in order to help limit whatever drawbacks they might have.

The agricultural machine sector should attach importance to researching the manufacture of suitable equipment and means for applying chemicals, especially small (or very small) capacity sprayers in order to reduce the amount of solution and secondary agents used, achieve greater economy and limit the pollution of the environment.

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CSO: 5400

ZAMBIA

BRIEFS

TSETSE CONTROL EXPERT--Scientific secretary and tsetse co-ordinator, Mr C. W. Lee, has arrived in the country for a series of talks with officials in the Ministry of Lands and Agriculture on tsetse fly control. Mr Lee, who arrived on Monday, is scheduled to visit Chilanga insecticide unit, the National Council for Scientific Research tsetse colony at Mount Makulu agricultural research centre and conduct aerial spraying field trials near Ngoma lodge. He will advise the Government on the aerial spraying programme which the Department of Veterinary and Tsetse Control has embarked on. According to a spokesman in the ministry, Mr Lee, who is based in London at the centre of overseas pest research, has been involved in pest control since 1963. [Text] [Lusaka TIMES OF ZAMBIA in English 11 Oct 78 p 5]

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END